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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/334,387	06/16/1999	TAKASHI DATE	9281/3347	5276

757 7590 12/24/2003

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CHICAGO, IL 60611

EXAMINER

QI, ZHI QIANG

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/334,387

Applicant(s)

DATE ET AL.

Examiner

Mike Qi

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,893,625 (Tamatani et al) in view of US 4,832,467 (Miyagi et al) and US 5,689,352 (kishigami).

Claims 1-3, Tamatani discloses (Figs. 5-6) that a liquid crystal display device

Comprising:

- first substrate (1a) on which display electrodes (17) (the electrodes must be made of conductive material such as metal and is reflective) is formed;
- second substrate (1b) arranged opposite to the first substrate (1a);
- a sealing material (10), interposed between the pair of substrate (1a, 1b), for surrounding, together with the substrates;
- a liquid crystal injection space formed between the substrates; and liquid crystal deposited into and sealed into the liquid crystal injection space through the injection hole (3); the liquid crystal injection hole (liquid crystal injection portion) is formed in the sealing material (10);

- a plurality of display electrode (16a,16b,..., 17a,17b,...) are formed on a substrate surface adjacent to the liquid crystal (the liquid crystal is deposited into the liquid crystal injection space).

(concerning claim 1)

Tamatani does not expressly disclose that a metal reflective film is formed on a substrate surface, and the metal reflective film is spaced apart from the display electrodes, and the metal reflective film has not been formed on a portion of the substrate surface adjacent to the injection portion in the sealing material, and the portion of the substrate where the metal reflective film has not been formed providing an inspection area for the visual inspection of the injection portion in the sealing material.

However, Miyagi discloses (col.4, lines 10-37; Fig.1) that a liquid crystal mirror in which a metal reflective film (26) (such as AL or Cr) is coated on the outside surface of the back substrate (20), and alternatively, the reflective film (26) may be formed on the inside surface of the substrate (20) to underlie the electrode film (22) (must be display electrode), and that would be metal reflective film being spaced apart from the display electrode formed on a surface of a substrate.

Miyagi does not expressly disclose that the liquid crystal display device having display region and non-display region.

However, it was common and known in the art the reflective film would increase the light reflectance and enhance the brightness of the display. In order to enhance the brightness of the display, the reflective film must be formed adjacent to the display region and not to be formed in the non-display region such as the sealing region or in

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the adjacent region to the liquid crystal injecting portion, so as to distinguish the brightness between the display region and the non-display region. Such as Kishigami discloses (col.2, line 60 – col.3, line 46; Fig.7) that a liquid crystal display device having display area (8) in which the TFTs and electrodes are formed, and the rest area would be non-display area in which wires, semiconductor chips, connecting patterns are formed. Therefore, a liquid crystal display has display region and non-display region that is common and known in the art.

Because the metal reflection film has not been formed in a portion of the substrate, so that the portion where the metal reflection film has not been formed must be transparent. Therefore, the portion that has not metal reflection film would be an inspection area for the visual inspection.

The meal reflection has not been formed that is a process for making a device. Therefore, such device claim contains a process, so that "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process" (see MPEP 2113).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to form a metal reflective film on a substrate surface as claimed in claim 1 for enhancing the brightness of the display and distinguishing the display region and the non-display region.

(concerning claim 2)

Tamatani also discloses (Figs. 5-6) that the electrodes terminals are formed at the edges of the substrates and outside the display electrodes forming region.

Tamatani does not expressly discloses that the metal reflective film is formed on a portion of a substrate surface adjacent to the display electrode region, but is not formed on a portion of a substrate adjacent to the drawn electrode region, and the portion of the substrate where the metal reflection film has not been formed providing an inspection area for the visual inspection of the drawn electrode region.

However, However, Miyagi discloses (col.4, lines 10-37; Fig.1) that a liquid crystal mirror in which a metal reflective film (26) (such as AL or Cr) is coated on the outside surface of the back substrate (20), and alternatively, the reflective film (26) may be formed on the inside surface of the substrate (20) to underlie the electrode film (22) (must be display electrode), and that would be metal reflective film being spaced apart from the display electrode formed on a surface of a substrate.

Miyagi does not expressly discloses that the liquid crystal display device having display region and non-display region.

However, it was common and known in the art the reflective film would increase the light reflectance and enhance the brightness of the display. In order to enhance the brightness of the display, the reflective film must be formed adjacent to the display region and not to be formed in the non-display region such as in the adjacent to the drawn electrode region (the edge of the drawn electrode region would be non-display region), so as to distinguish the brightness between the display region and the non-

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display region. Such as Kishigami discloses (col.2, line 60 – col.3, line 46; Fig.7) that a liquid crystal display device having display area (8) in which the TFTs and electrodes are formed, and the rest area would be non-display area in which wires, semiconductor chips, connecting patterns are formed. Therefore, a liquid crystal display has display region and non-display region that is common and known in the art.

The meal reflection is not formed that is a process for making a device.

Therefore, such device claim contains a process, so that “Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process” (see MPEP 2113).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to form the metal reflective film on a portion of a substrate surface adjacent to the display electrode region, but is not formed on the portion of a substrate adjacent to the drawn electrode region (outside the display region) as claimed in claims 2 for enhancing the brightness of the display and distinguishing the display region and the non-display region.

(concerning claim 3)

Tamatani also discloses (Figs. 5-6) that the display electrodes terminals are formed at the edge of one of the substrates. Because the electrodes terminals are formed at the edge of the substrate would increase the display area. The second drawn

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electrode and the display electrode of the other substrate must be the common electrode terminal and the common electrode on the upper substrate. The common electrode terminal and the common electrode must be connected to each other by an electrode connection means. The electrode connection means must be electrical conductive material such as conductive particles; conductive epoxy within the boundary, which seals the liquid crystal, i.e., the electrical conductive means is arranged on the sealing means so as to increase the display area.

Tamatani does not expressly disclose that the metal reflective film is not formed in a region of a substrate in which the second drawn electrode and the display electrode of the other substrate are connected to each other on the sealing material, and the region of the first substrate where the metal reflective film is not formed providing an inspection area for the visual inspection of the connection between the second drawn electrode and the display electrode.

However, Miyagi discloses (col.4, lines 10-37; Fig.1) that a liquid crystal mirror in which a metal reflective film (26) (such as AL or Cr) is coated on the outside surface of the back substrate (20), and alternatively, the reflective film (26) may be formed on the inside surface of the substrate (20) to underlie the electrode film (22) (must be display electrode), and that would be metal reflective film being spaced apart from the display electrode formed on a surface of a substrate.

Miyagi does not expressly disclose that the liquid crystal display device having display region and non-display region.

However, it was common and known in the art the reflective film would increase the light reflectance and enhance the brightness of the display. In order to enhance the brightness of the display, the reflective film must be formed adjacent to the display region and not to be formed in the non-display region such as the sealing region or in the adjacent region to the liquid crystal injecting portion, so as to distinguish the brightness between the display region and the non-display region. Such as Kishigami discloses (col.2, line 60 – col.3, line 46; Fig.7) that a liquid crystal display device having display area (8) in which the TFTs and electrodes are formed, and the rest area would be non-display area in which wires, semiconductor chips, connecting patterns are formed. Therefore, a liquid crystal display has display region and non-display region that is common and known in the art.

Because the metal reflection film is not formed in a portion of the substrate, so that the portion where the metal reflection film is not formed must be transparent. Therefore, the portion that has not metal reflection film would be an inspection area for the visual inspection.

The meal reflection has not been formed that is a process for making a device. Therefore, such device claim contains a process, so that "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product-by-process claim is the same as or obviouys from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process" (see MPEP 2113).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the metal reflective film is not formed on a region of a substrate in which the second drawn electrode and the display electrode of the other substrate are connected to each other on the sealing material (i.e., non-display region) as claimed in claim 3 for enhancing the brightness of the display and distinguishing the display region and the non-display region.

Claims 4 and 5, the limitations are redundant. Because the limitations claimed in the claims 4 and 5 were included in the claims 1 and 2, and that would have been obvious as set forth above.

Claim 6, the electrode connection means consists of conductive particles added to the region constituting the sealing material was common and known in the art. Because the electrode must connect to the electrode terminal, and the connection means must be electrical conductive material such as the sealing material consists of conductive particles. The electrode connection means arranged on the sealing material would increase the display area, and that would have been at least obvious.

Response to Arguments

3. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

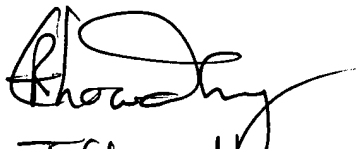
Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi
December 23, 2003


T. Chowdhury
Primary Examiner